

MODIFICATIONS TO MY OWN MACHINE:

1. New "blade clamps":

In the "fall" 2018 issue of the "Scroll Saw Woodworking & Crafts" magazine, and as mentioned above, I saw the advert below. (As an aside, though this mag concentrates only on scrolling and has lots of different designs, personally I don't find it all that worth while - there's quite a lot of repetition, and although I appreciate that it's purely a matter of personal taste, I find only a few of the designs that feature in any issue appeal to me. But sometimes the ads are quite interesting, even if some of the advertisers will not ship to Switzerland!) But in the case below, the company is in Switzerland.



As you can see, it's a set of new, "blade clamps" (that's what I call them anyway, but it seems the Americans call them "blade chuck heads"). The idea is that these new smaller clamps, will, compared with the old ones, reduce the weight supported by those small upper and lower arms ahead of the main arm pivots (I call those little arms "sub arms" BTW). That weight reduction in turn leads to reduced vibration and also, so it's claimed, the new design makes changing blades even easier than it is already.

According to the advertising blurb I saw, these new clamps have been developed by the Swiss company Pégas, who worked in conjunction with Eidgenössische Technische Hochschule, Zürich ("National Technical High School") to reduce vibration of the machine. They went about this by improving the original material spec to "aircraft quality alloy" (which is actually about as informative as saying they're made of "quality hardwood", but never mind)! As the picture below shows, regardless of material, the new clamps are substantially smaller than the originals.



That's the original upper blade clamp on the RH side (silver grey), together with its original blade clamp thumb screw. The new design upper clamp (red) is in the centre with the respective mounting bolts below the old and new clamps.

Both clamps are very nicely anodised in shiny red giving a quality appearance. And although an almost microscopically thin coating, anodising does normally also add some marginal hardness to the base alloy. That *may* be advantageous for the area where the locking clamp thumb screws thread into the new upper and lower clamps - not that I've experienced any difficulties at all with the threads in the original blade clamps - nor have I had any problems with the thumb screw threads themselves either - after 4+ years now.

Anyway, the kit also includes not only these new-design upper and lower clamps but also new clamp retaining machine screws with their nuts and washers plus their (hardened steel) tubular spacers. *And* new upper and lower blade clamp thumb screws are also included.

Like the thumb screws, I've experienced no problems at all with the original blade clamp retaining screws and their spacers, and it was about 2 years ago now that, as per the Manual, I *lightly* greased the insides of the needle roller bearings and those spacers.

One of the original pairs of clamp retaining screws and spacers can be seen just below the original upper clamp in the RH side of picture above, together with a new pair from the kit in the centre, below the new upper clamp. You *might just* be able to see slightly shiny witness marks on those two original spacers (where they've been in contact with the bearings) but as said, those original spacers are clearly hardened steel, and at the rate of "wear" shown (*not* measurable by any equipment I own!), I think that they'll be able to do their duty (quite a heavy duty actually) for many years to come before they will need replacement. As said, these machines are very well specified overall, and these clamp retaining bolts and spacers are a typical example.

So as the new blade clamp retaining screws and spacers are a 1:1 replacement fit with the old (I didn't even bother to measure them) I feel that Pegas have in fact been somewhat "over-lavish" in supplying new ones, not to mention also supplying new blade thumb screws too. All rather unnecessary IMO

So my impression is that while the new upper and lower blade clamps are all well and good, the "added extras" are a bit OTT and represent little or no added value for a (no doubt) considerably higher price than a set of clamps only would cost. As you can also see, the whole "Overhaul Kit" comes in a very snazzy plastic box complete with carefully-fitted foam rubber packing with cut out spacers. Rather nice, but also a bit expensive I feel.

So at risk of being hyper-critical, I feel that all the "extras" together with the fancy packing, presents a case of Pegas "over-egging the pudding" with no real benefit.



New upper (LH) and lower (RH) clamps installed (excuse the dust; I'd just finished a couple of test cuts!)

But do they work? Well it *has* definitely reduced vibration on my machine *to a certain extent*, but to be quite honest, I didn't have all that much vibration to start with!

To clarify, I do have a small vibration "problem" on my machine when it's set at certain speeds, but I've always put that down to a sympathetic harmonic occurring between the machine, the table on which the machine is bolted, and the hard "rubber ball" type castors that the table stands on. I do need to move the table around the shop though, and haven't changed these for other castors (yet). In other words, I find my machine normally free of excess vibration except at certain rpm "sweet spots" (or perhaps that should be "sour spots")!

But I'd heard on the US Toy Making Forum from other Excalibur owners that this upgrade really is worth while, and to me (mug??) the relatively high cost of the upgrade kit suggested something rather special. So I thought "this might be something for me"! For info, I paid 67 Euros, excluding both the German VAT at 19% and the shipping costs.

Having decided to give this upgrade a try myself I added the kit to my Christmas wish list. And as so often in the past, my ever-loving came up trumps.

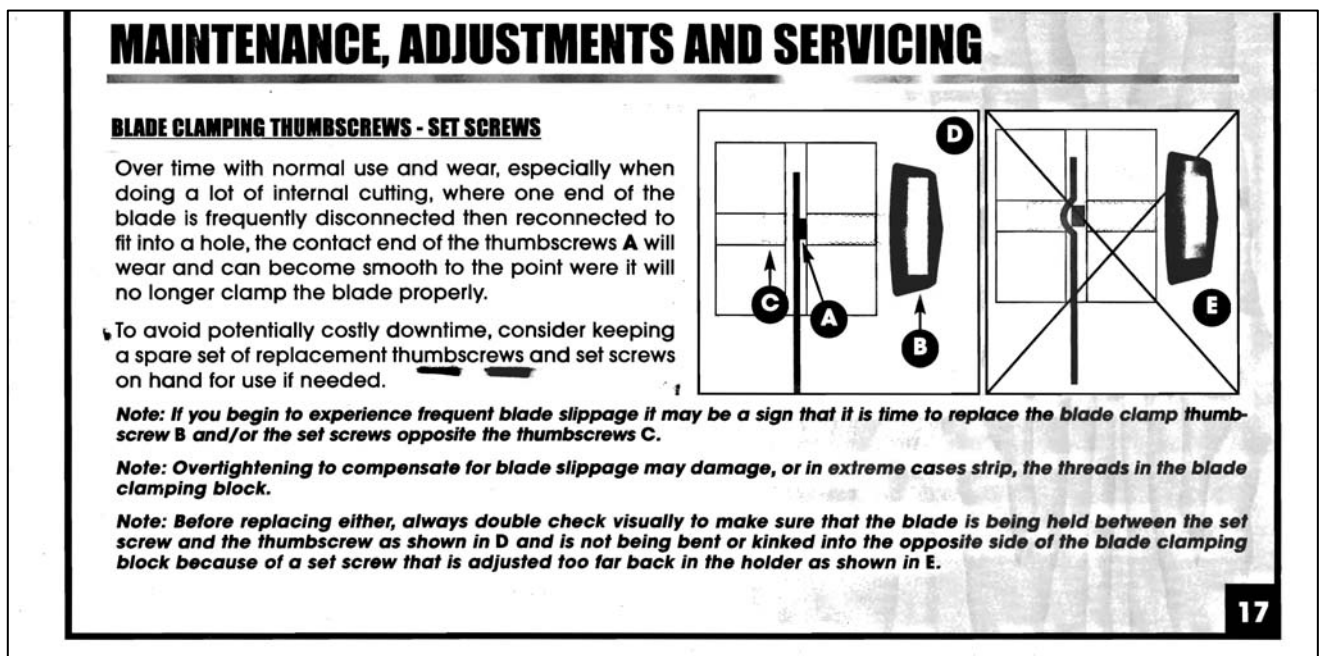
As said, this has reduced my (small amount) of existing vibration, but perhaps other owners have experienced more vibration with their machines than I've ever experienced? Otherwise, to be quite honest I see hardly any point in this upgrade.

So my personal advice would be that unless you have vibrations that really disturb your work, you can save your hard-earned for a more worthwhile buy than this. Perhaps if Pegas sold just the 2 new blade clamps alone (packed in a simple plastic bag, like the spares I bought a couple of years ago came in?) this upgrade would represent better value for money. But as currently offered, sorry, but I don't think so.

But if you are interested there are several versions of the kit, including a version to fit several Delta scroll saws (and my own kit came marked as being suitable for the Axminster Tools "own badge" machines as well as for my own machine). And these new blade clamps are shown fitted as standard to the new Pegas "own label" version of the 21 inch machine in the advert I've copied into the separate .pdf "Some Background" part of this post.

Before moving on though, it may be worthwhile discussing the blade adjustment feature found on both the new and old versions of the blade clamps.

The manual that came with my machine makes a point about this and I guess the manual for the other "own brand" label versions does too. See the diagram below:



Above diagram scanned directly from my own manual

The main point is, of course that the grub screw shown as **C** in the manual diagram should not be set less than flush with the clamp body - i.e. it's important to make sure that grub screw is set as shown - otherwise the blade top can be damaged if set too far LEFT, or at the extreme, the blade will not fit into the slot if set too far to the RIGHT.

Interestingly (??) measuring the slot on the old blade clamp body shows the width as 1.8 mm (72 thou in old money), and the slot in the new clamp measures 2.15 mm (85 thou). I wonder why? Weight loss perhaps?

But if that's so, then why add the (relatively) large locking nut to the grub screw fitted in the new clamp? A locking nut seems obvious at first glance, but when you consider that the machine is only ever run for any time with a blade fitted (so the grub screw is locked against the blade top/thumb screw anyway) why bother with the lock nut? My old design blade clamp has no lock nuts on the grub screws and my grub screws have never loosened in use.

But thinking a bit more, I start to wonder why they have those grub screws at all? As said, the widest blade slot in the head (the new design head in this case) is 2.15 mm. Yet looking through my own diverse collection of blades that I use in my machine I see widths of:

Pegas No 12 MGT = 0.47 mm
Coarse pinned blade = 0.42 (pin removed)
Part band saw blade = 0.71 mm

So why not do away with the drilled and tapped hole in the LH side of the blade clamp head altogether? Therefore no grub screw on the LH side? And then reduce the width of the slot to, say, 1.25 mm?

That *may* result in a problem with very thin blades no longer being centralised within the slot, but the finest (sheet metal cutting) blade I have is 0.20 mm thick. So *if* that amount of out of centre (compared to a suggested slot width of 1.25 mm) is a worry, that can easily be adjusted out by means of the standard tuning "trick" - i.e. cut a wood block on one side then insert the blade into the cut from behind, adjusting the head angle until the blade is truly vertical to the table.

"Just wondering Mr. Pegas, Sir"!

Perhaps their answer would be that without the grub screw C shown above the blade would tend to slip against the smooth inner surface of the slot? Dunno. But I'm going to try running my saw without the locking nuts on grub screw C anyway, just to see what happens. If it doesn't work I'll report back.

OK, so that's blade clamps done to death I think. Any other "problems" with my machine?

2) Table protection:

It's been noted here and elsewhere (several times before actually), the paint finish on the table seems to scratch and mark much too easily - this is a "problem" that does not have any adverse effect on the functionality of the machine, but it does irritate me - it just looks scruffy! IMO this just should not happen on what is a high-end machine - and from all I've seen both before and after my purchase, all Excalibur scroll saws are similarly afflicted.

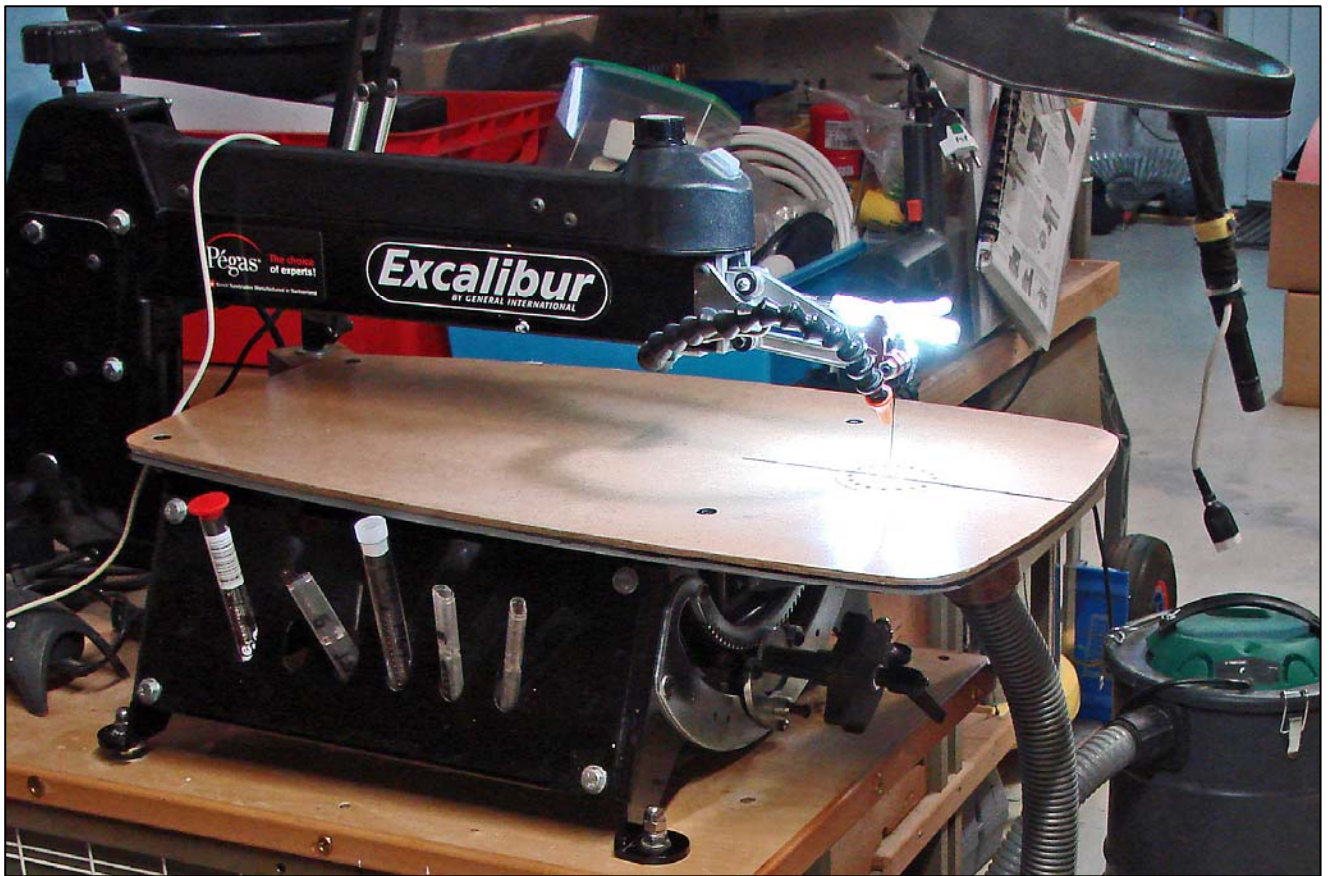
See the 2nd link in the first part of this post for my original attempt at a fix for this (a sheet of transparent plastic shelf/book covering). This turned out to be a bit too soft and started fraying in places after a while, especially around the blade cut out and DE holes. So that was not such a success.



This is my own table. To be fair to GI and their paint, this is after I used acetone to remove the adhesive residue from the transparent shelf covering.

A member here (I forget who, sorry) has recently posted a very neat upgrade consisting of a Perspex sub-table which is nicely fixed into place by a couple of very neat Perspex turnbuckles. This looks great (thanks for posting) but my only reservation for my own use is whether or not the Perspex will be hard enough to resist scratching, especially as I cut thin sheet metal on the machine fairly often.

So my own fix (before I saw the above Perspex sheet post) was to make a sub table of, probably, MDF. But IMO this should be no more than about 5 or 6 mm thick (otherwise, if using reverse tooth blades, all the reverse teeth may get blanked off by a thicker sub table).



As shown above, it turned out I couldn't find any MDF of suitable thickness ("thinness"?) in the off cuts bins at my local DIY Emporia, so I settled for some stuff that looks remarkably like old fashioned hardboard (except that the shiny face feels a bit harder than I remember hardboard being). Anyway at approx 4.5 mm thickness, and at a cheap price, I thought it was worth punt.

I cut 2 inserts for the blade cut out, one at more or less "zero clearance" (it's actually a 3.0 mm dia hole) the other insert to allow for full scale angle deflection of the head in both directions (that's a basic 10 mm dia hole, slightly flared on the top surface with a large diameter countersink bit).

I also drilled only a single circle of 4.5 mm dia holes to align with the outer ring of the table DE holes in both inserts. Both inserts together with the whole sub table were then given several coats of water-based satin finish clear varnish, rubbing gently with descending grades of fine wet & dry between coats.

The resulting sub table is shown and looks and feels OK for now. I'll report later on how well it lasts, especially remembering my habit of cutting sheet metals on the saw!

3) Dust blower tube attachment:

The segmented plastic dust blower tube and nozzle is excellent, and the individual segments are stiff enough that the tube will stay at whatever curve you set. BUT it's attached to the machine by what looks a bit like a big "grease nipple" (actually a metal casting screwed into the LH underside of the outer arm). After a while the connection has started to come a bit loose (the plastic ball socket is simply pressed on to the "grease nipple") so I guess the plastic ball end has started to wear on the metal "grease nipple".

Anyway the rather annoying result is that the whole carefully adjusted tube assembly sometimes collapses in a "drunken heap" right on top of the job when I'm half way through a cut. NOT an ideal situation!

I first simply tried pulling the whole plastic tube assembly off the metal "grease nipple" and making one wrapping of plastic insulating tape around the metal "nipple".

This was OK but for a while but started to wear again quite quickly. My next move has been to remove the whole plastic tube assembly from the metal "nipple" and then slip a length of suitably-sized electrical heat shrink sleeve loosely over the tube. After reassembly I applied the heat gun and "Hey presto, so far so good".

Again it remains to be seen how long this "fix" (bodge?) will last in practice. This is hardly worth a picture (!!)

but if anyone else has had this problem and has other suggestions as to how to fix I for one would be pleased to see details.

4) Machine position:

From time to time there have been queries here about machine position - e.g. working height, sit or stand, etc, etc.

As I have a rather peculiar back problem I've set my machine up so that I can sit while cutting, which, coupled with an old typists' chair (no arm rests) suits me well.

However I continue to experiment, and while fitting the above new sub table I messed about a bit more. I'd heard before about people setting the machine at an angle (sloping up hill away from the cutting position) and though I did try this when I first got my machine I didn't find it very comfortable.

Perhaps my back has degenerated because I've tried this idea again and found it rather better. Initially I had the 2 back feet raised on blocks of about 2 inches high. This I found too much of an uphill angle, but reducing those blocks to roughly an inch high does seem, at the moment anyway, a good solution for me.

For now I've left them at that but no doubt I shall experiment a bit more over time.

I stress that my own set up is "tailored" to my own situation and will not necessarily suit others. As in previous posts I strongly recommend leaving enough flexibility in your own set up to allow for easy changes of height, angle, sitting/standing position, etc, to be made in future.

Anyway, I hope these description of the modifications I made helps other Excalibur/Pegas/Axminster Tools users.